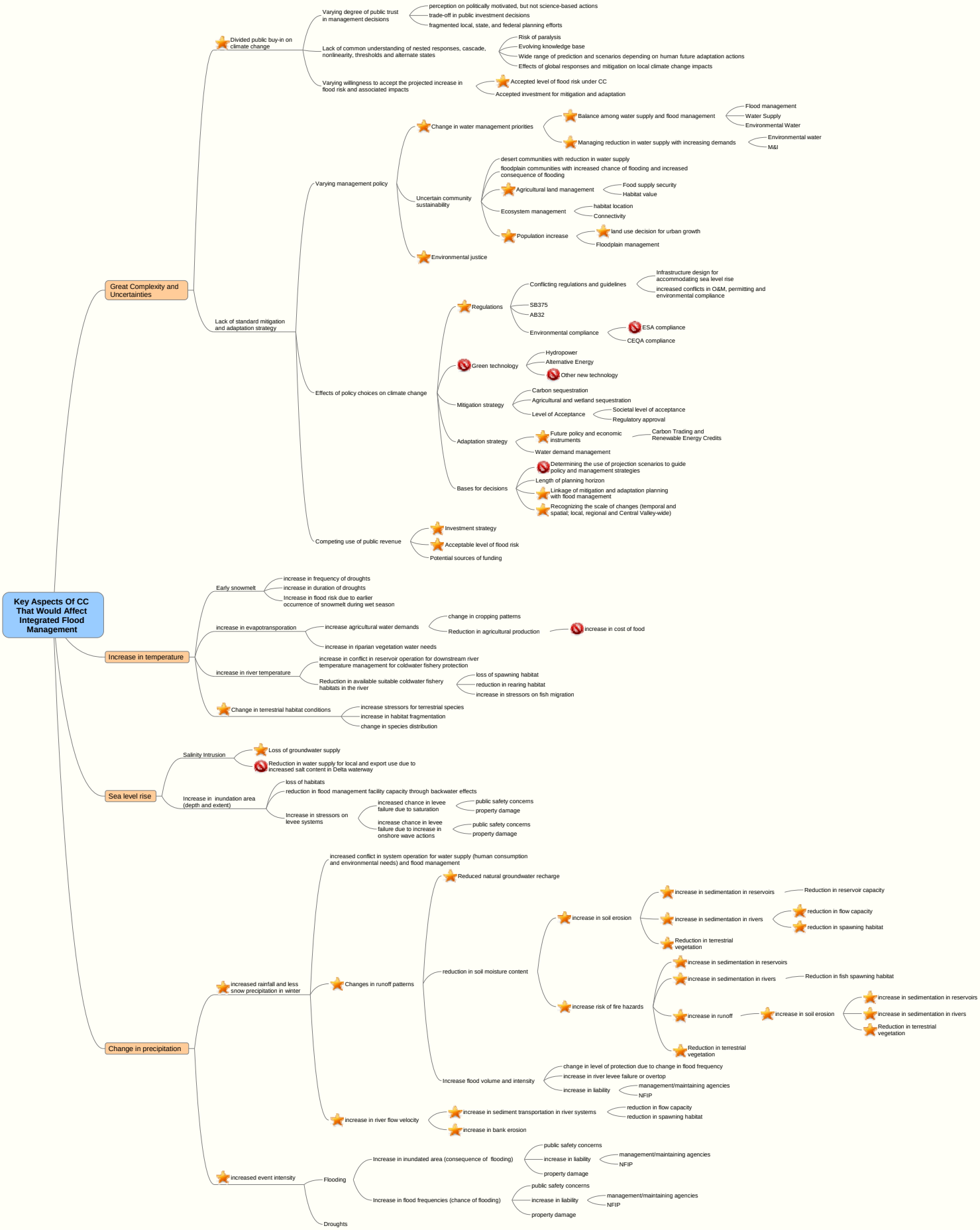
Key Aspects Of CC That Would Affect Integrated Flood Management
Great Complexity and Uncertainties
Divided public buy-in on climate change
Varying degree of public trust in management decisions
perception on politically motivated, but not science-based actions
trade-off in public investment decisions
fragmented local, state, and federal planning efforts
Lack of common understanding of nested responses, cascade, nonlinearity, thresholds and alternate states
Risk of paralysis
Evolving knowledge base
Wide range of prediction and scenarios depending on human future adaptation actions
Effects of global responses and mitigation on local climate change impacts
Varying willingness to accept the projected increase in flood risk and associated impacts
Accepted level of flood risk under CC
Accepted investment for mitigation and adaptation
Lack of standard mitigation and adaptation strategy
Varying management policy
Change in water management priorities
Balance among water supply and flood management
Flood management
Water Supply
Environmental Water
Managing reduction in water supply with increasing demands
Environmental water
M&I
Uncertain community sustainability
desert communities with reduction in water supply
floodplain communities with increased chance of flooding and increased consequence of flooding
Agricultural land management
Food supply security
Habitat value
Ecosystem management
habitat location
Connectivity
Population increase
land use decision for urban growth
Floodplain management
Environmental justice
Effects of policy choices on climate change
Regulations
Conflicting regulations and guidelines
Infrastructure design for accommodating sea level rise
increased conflicts in O&M, permitting and environmental compliance
SB375
AB32
Environmental compliance
ESA compliance
CEQA compliance
Green technology
Hydropower
Alternative Energy
Other new technology
Mitigation strategy
Carbon sequestration
Agricultural and wetland sequestration
Level of Acceptance
Societal level of acceptance
Regulatory approval
Adaptation strategy
Future policy and economic instruments
Carbon Trading and Renewable Energy Credits
Water demand management
Bases for decisions
Determining the use of projection scenarios to guide policy and management strategies
Length of planning horizon
Linkage of mitigation and adaptation planning with flood management
Recognizing the scale of changes (temporal and spatial; local, regional and Central Valley-wide)
Competing use of public revenue
Investment strategy
Acceptable level of flood risk
Potential sources of funding
Increase in temperature
Early snowmelt
increase in frequency of droughts
increase in duration of droughts
Increase in flood risk due to earlier occurrence of snowmelt during wet season
increase in evapotransporation
increase agricultural water demands
change in cropping patterns
Reduction in agricultural production
increase in cost of food
increase in riparian vegetation water needs
increase in river temperature
increase in conflict in reservoir operation for downstream river temperature management for coldwater fishery protection
Reduction in available suitable coldwater fishery habitats in the river
loss of spawning habitat
reduction in rearing habitat
increase in stressors on fish migration
Change in terrestrial habitat conditions
increase stressors for terrestrial species
increase in habitat fragmentation
change in species distribution
Sea level rise
Salinity Intrusion
Loss of groundwater supply
Reduction in water supply for local and export use due to increased salt content in Delta waterway
Increase in inundation area (depth and extent)
loss of habitats
reduction in flood management facility capacity through backwater effects
Increase in stressors on levee systems
increased chance in levee failure due to saturation
public safety concerns
property damage
increase chance in levee failure due to increase in onshore wave actions
public safety concerns
property damage
Change in precipitation
increased rainfall and less snow precipitation in winter
increased conflict in system operation for water supply (human consumption and environmental needs) and flood management
Changes in runoff patterns
Reduced natural groundwater recharge
reduction in soil moisture content
increase in soil erosion
increase in sedimentation in reservoirs
Reduction in reservoir capacity
increase in sedimentation in rivers
reduction in flow capacity
reduction in spawning habitat
Reduction in terrestrial vegetation
increase risk of fire hazards
increase in sedimentation in reservoirs
increase in sedimentation in rivers
Reduction in fish spawning habitat
increase in runoff
increase in soil erosion
increase in sedimentation in reservoirs
increase in sedimentation in rivers
Reduction in terrestrial vegetation
Reduction in terrestrial vegetation
Increase flood volume and intensity
change in level of protection due to change in flood frequency
increase in river levee failure or overtop
increase in liability
management/maintaining agencies
NFIP
increase in river flow velocity
increase in sediment transportation in river systems
reduction in flow capacity
reduction in spawning habitat
increase in bank erosion
increased event intensity
Flooding
Increase in inundated area (consequence of flooding)
public safety concerns
increase in liability
management/maintaining agencies
NFIP
property damage
Increase in flood frequencies (chance of flooding)
public safety concerns
increase in liability
management/maintaining agencies
NFIP
property damage
Droughts